



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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TS105-10L5.5MM

Thermopile Sensor

SPECIFICATIONS

- **Thermopile IR-Sensor**
- **For Contactless Temperature Measurement**
- **Single Element**
- **For Industrial Pyrometers**
- **Silicon Lens**
- **Accurate Reference Sensor**

Thermopiles are mainly used for contactless temperature measurement in many applications. Their function is to transfer the heat radiation emitted from the objects into a voltage output.

FEATURES

Small Field of View

Accurate NTC Reference Sensor

APPLICATIONS

Industrial Pyrometers

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit	Description
Storage Temperature	T _S	-20	+20	+85	°C	permanent
Storage Temperature	T _S	-20	+20	+100	°C	non permanent

PERFORMANCE SPECS

Parameter	Symbol	Value	Unit	Condition
Operating Ambient Temperature	T _{Amb}	-20 to +85	°C	permanent
Operating Ambient Temperature	T _{Amb}	-20 to +100	°C	non permanent
Package		TO-5		
Absorber Area	A	0.7 × 0.7	mm ²	
Thermopile Resistance	R _{TP}	43 ± 8	kΩ	T _{Amb} = +25°C
Temperature Coefficient of Thermopile Resistance	TCR _{TP}	-0.06 ± 0.04	%/K	T _{Amb} = +25°C to +75°C
Voltage Response	V _{TP}	0.9 ± 0.25	mV	T _{Amb} = +25°C, T _{Obj} = +100°C, DC, totally filled field of view
Temperature Coefficient of Voltage Response	TCV _{TP}	-0.45 ± 0.08	%/K	T _{Amb} = +25°C to +75°C
Noise Equivalent Voltage	NEV	30	nV/Hz ^{1/2}	T _{Amb} = +25°C
Rise Time	τ ₆₃	20 ± 5	ms	
Ambient Temperature Sensor		NTC		
Ambient Temperature Sensor Resistance	R _{NTC}	100 ± 5	kΩ	T _{Amb} = +25°C
Beta Value of NTC	β-Value	3955 ± 0.3%	K	T _{Amb} = 0°C to +50°C

TYPICAL PERFORMANCE CURVES

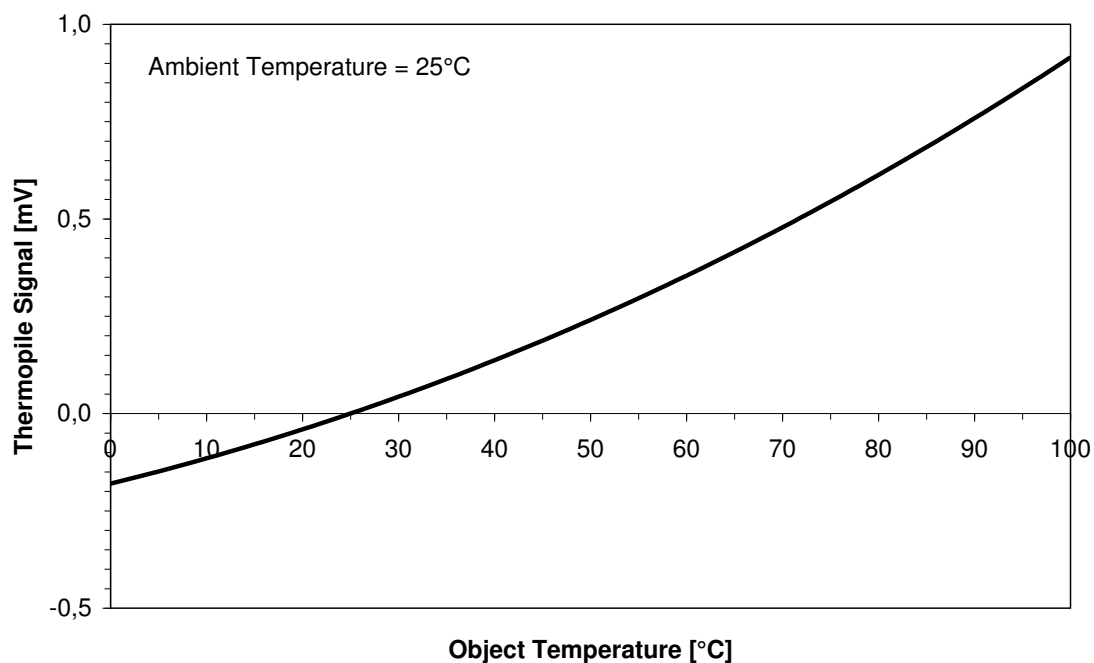


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

OPTICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Field of View	FOV	10	deg	at 50% of maximum signal

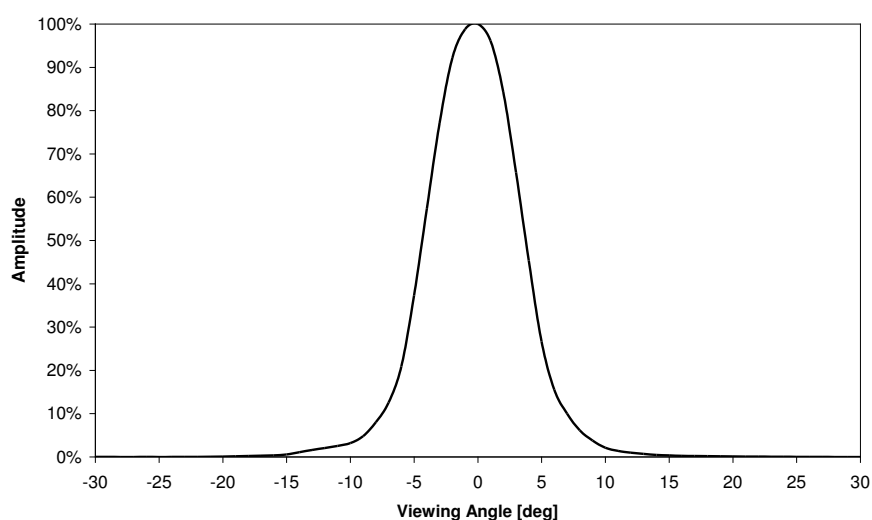


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Transmission Range	Si	≥ 1.1	μm	Silicon

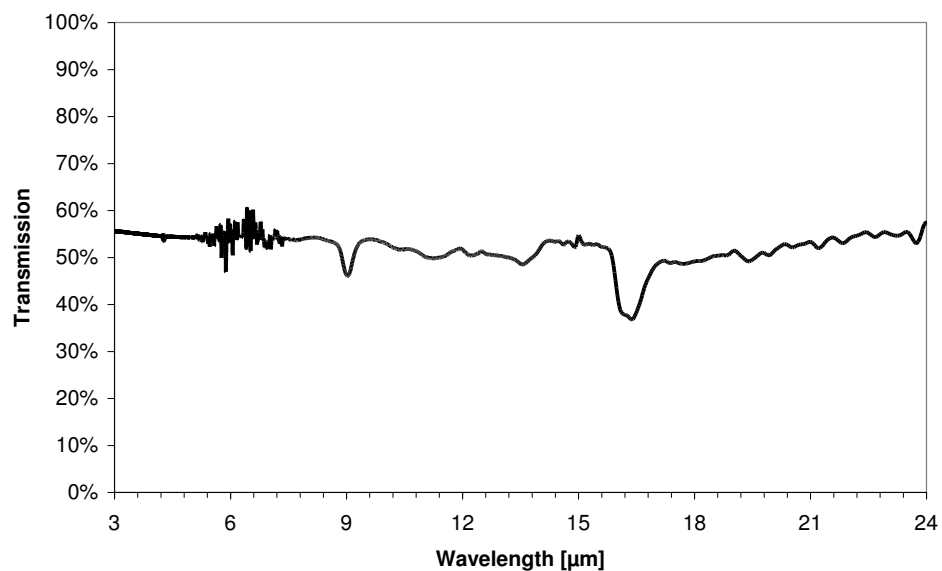


Figure 3: Lens transmission curve

ELECTRICAL CONNECTIONS

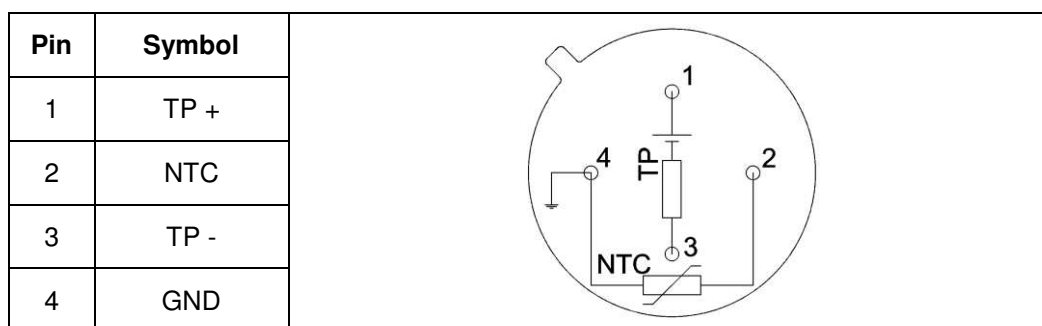


Figure 4: Electrical connections - bottom view of thermopile

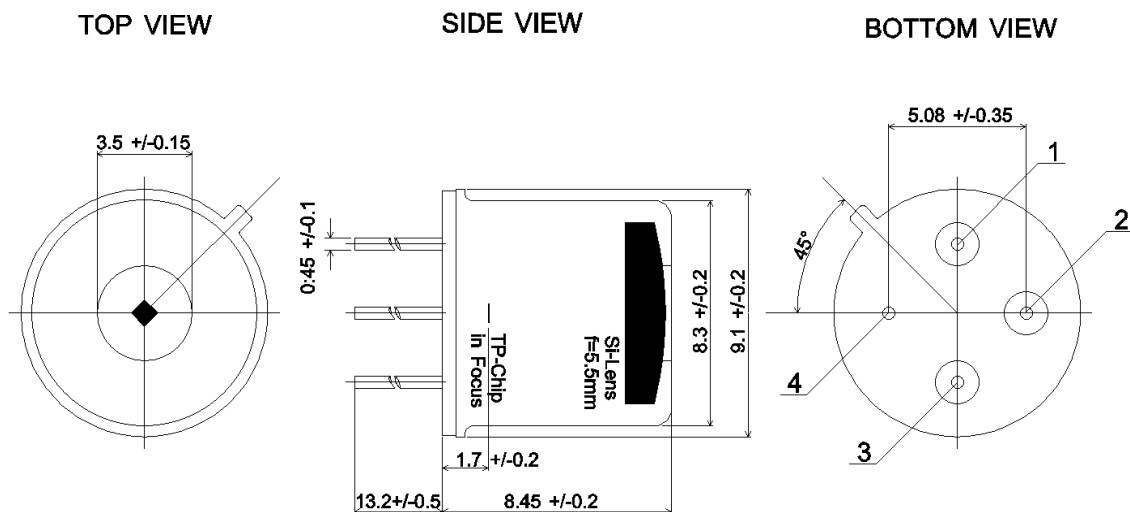
MECHANICAL DIMENSIONS

Figure 5: Mechanical dimensions of thermopile

ORDERING INFORMATION

Part Description	TS105-10 L5.5 NTC 100K BETA
Part No.	G-TPCO-019

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